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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

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MEDICINE

No Cadaver Blood for U.S.

THE USE of cadaver blood for transfusions may appear to be somewhat ghoul-ish to some persons, but that would not be the primary reason for its unpopularity in this country, a Chicago surgeon said.

Blood from a dead person can be as good as blood from a living person. However, there would be too many family and legal problems to hurdle on the sides of both the donor and recipient, Dr. Leo M. Zimmerman said in a talk entitled "The History of Blood Transfusions."

Once the person is dead, he pointed out, the remains legally belong to his next of kin, who has the say-so about what happens to the body.

Another disadvantage, he pointed out, is that a large transfusion task force must be roaming at all times ready to speed to the scene of death and draw the blood.

"Can you imagine this in a city the size of Chicago?" he asked.

Also, there is no need for such blood, since American blood banks are well stocked with blood from live professional and volunteer donors. Dr. Zimmerman

said that cadaver blood transfusions were begun by Soviet scientist Serge S. Yudin at the Sklifosovskii Institute in Moscow in 1930. Since then, more than 27,000 such transfusions have been performed there.

The Russians claim as major advantages of this technique the facts that cadaver blood does not clot, or if it does, it quickly liquefies again, and that eight pints can be drawn from one subject, whereas only one pint can be safely taken from a live donor at one time.

However, cadaver blood is non-clotting only when the donor has died suddenly. The Russians eliminate those bodies with open wounds where infection can enter. They do not use blood until a complete autopsy has been performed to be sure the victim had no disease that might be carried in the blood stream.

Blood transfusions date back to the last century when an English obstetrician prevented death from hemorrhage after childbirth by administering the fluid with a quill and crude syringe.

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later triassic period of geological time when dinosaurs roamed this part of the world and when the region from Englewood, N. J., to Nyack, N. Y., resembled the deserts of western Texas.

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TECHNOLOGY

Trackless Train Planned To Go 25 Miles Per Hour

A TRACKLESS train consisting of 12 or more individually powered cars has been proposed to travel on highways and roads at a top speed of 25 miles per hour. Once at its destination, the train could be separated and each car driven as an individual vehicle. The Army Transportation Research Command has awarded a \$75,000 contract to Stevens Institute of Technology in Hoboken, N.J., for development of a control system for the train so that one driver can control all cars at once.

Science News Letter, March 26, 1960

MEDICINE

Powerful Clot Dissolver Isolated From Blood

A POWERFUL clot dissolver that occurs naturally in the blood has been isolated by a team of research physiologists.

The extract produced "a spectacular result" as a clot dissolver when in the living bloodstream although it showed no such possibilities when added to blood in test tubes. It has not yet been tried in humans, nor is it presently available in sufficient quantity to permit clinical trials, Dr. Walter H. Seegers, Ricardo H. Landaburu and J. Frederic Johnson of Wayne State University, Detroit, cautions in *Science*, 131:726, 1960.

Thrombin E, the name given their purified extract, produced no serious side effects when injected into the bloodstreams of dogs. At the same time it proved to be a powerful dissolver of fibrin clots in those bloodstreams.

The thrombin E was extracted from thrombin, a component of the fluid portion of blood necessary for natural blood clotting. It was separated from thrombin C, the active blood clotting ingredient of thrombin.

Science News Letter, March 26, 1960

ARCHAEOLOGY

Tools Found in India From Old Stone-Age?

STONE FLAKES which may be old stone-age tools have been found along the Girna River bank 261 miles northeast of Bombay—the first time found in this area. Dr. C. R. Karnik of Mooljee Jaitha College, Jalgaon, East Khandesh, India, reported his find of the stone tools in *Nature*, 185:711, 1960. It appears that the river is now eroding ancient beds and underlying rock. Dr. Karnik said he believes a systematic survey of the river valleys by archaeologists might lead to many rich finds.

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LINGUISTICS

Journal Uses Interlingua

TO PROVIDE the "most compact form of communication feasible in the present linguistic situation," the Journal of the American Medical Association has added each week an Interlingua translation to the summaries of its original articles.

The principal medical journal in America thus joins a score of other medical publications to make it possible, through this international auxiliary language, for those who have an imperfect knowledge of English to have access to new medical knowledge.

"In the medical libraries of the world, the Interlingua summaries will be permanently available for the benefit of those who have an imperfect reading knowledge of English," the Journal states editorially. "Their facility in reading it will vary according to their language backgrounds. Those with a Romance language as their mother tongue will grasp it at first sight. Others in Europe, on both sides of the iron curtain, will do almost as well. So far, few or no factual data are available as to its scope in Russia, but the international technical-scientific vocabulary, which is the backbone of Interlingua, is known to be widely diffused in the Russian language. Any facility in reading Interlingua in the near and far East will depend mainly on a previous study of European language and would therefore not be great.

"However, Interlingua could serve as a bridge from nonoccidental scientific literature. If a medical writer in Moscow, Istanbul, Cairo, Peking, or Tokyo were to present his material in Interlingua or prepare an Interlingua summary, he would speak to the rest of the world with a single

voice so that his contribution would be immediately intelligible to the occidental world."

Interlingua is being introduced into practical use, especially in scientific journals and at international conferences, with the aid of SCIENCE SERVICE. (See p. 196.)

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GEOLOGY

Age of Hudson Palisades Set at 190,000,000 Years

THE AGE of the Palisades that line 20 miles of the western shore of the Hudson River in New York and New Jersey has been set at about 190,000,000 years.

The age was determined by Glenn Erickson of Columbia University's Lamont Geological Laboratory and reported to the New York Academy of Sciences. Mr. Erickson studied the decay of radioactive potassium to argon in determining that the Palisades originally were forced up through many layers of the earth's crust about 190,000,000 years ago.

Extensive use of radioactive isotopes of uranium, rubidium and potassium in fixing the ages of such rock structures as the Palisades has only been feasible for geochemists for the past three to five years. It is the enormously prolonged radioactive decay of these isotopes into lead, strontium and argon, respectively, that enables scientists to measure rock age directly, rather than do it by inference from fossils and structural formations.

The Palisades belong to the upper or

ROCKETS AND MISSILES

TV Eyes to Study Weather

Two TV cameras are scheduled to take pictures of the earth's cloud formation from a satellite 400 miles above the earth. Ground equipment will re-record the pictures.

BEFORE THE MONTH is out, two TV cameras in an American satellite should be making unprecedented pictures of the world's clouds and advancing man's knowledge of the weather.

The "weather eye," to be launched by the National Aeronautics and Space Administration, is called Tiros I. It is scheduled to be put into orbit from Cape Canaveral within a very short time. Its TV cameras are to make pictures unprecedented in coverage.

Pictures may be made in the New World as far south as the middle of South America and as far north as Canada. The satellite will weigh 27½ pounds and be 42 inches in diameter and 19 inches high.

A circular orbit 400 miles above the earth is planned. Solar cells will convert sunlight into electrical energy to power the instruments.

The TV pictures will be recorded and

later broadcast when the satellite is over ground stations equipped to re-record the pictures. At the same time the ground stations will also instruct the satellite on when to take pictures during its next orbit.

One of the TV cameras is to take pictures of an area 800 miles wide. The other will concentrate on a 65-mile wide area within the larger picture area.

Launched by a Thor-Able vehicle, the satellite should have an orbit inclined about 50 degrees to the equator. It will transmit for 90 days. Then ground signals will stop the transmission.

The first Tiros will not contain infrared detectors, but Tiros II, planned for later in 1960, will contain these detectors.

The two satellites, which will spin, will be important experiments to further man's understanding of the weather he talks about but can do little to change—as yet.

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SURGERY

Clue to Grafts Hinted

UNDERSTANDING the basic mechanism in the human body's rejection or acceptance of grafts of skin or vital organs from another is advanced by a report from Dr. Franklin Ashley and Earl McNall of the University of California, Los Angeles.

They have elaborated the role of ribonucleic acid (RNA), in tolerance to grafts from others. RNA is the nucleic acid which translates genetic information. Even-

tually this RNA role may be clinically exploited.

When tissue of one subject is grafted to another, the recipient's system treats it as a foreign body. Somehow it senses substances in the graft tissue genetically different from its own. These substances are known as antigens because they cause the recipient to produce antibodies to fight the "invader." As a result the graft is

"killed" by the antibodies and sloughs off.

The UCLA researchers have evidence that the donor RNA itself is not an antigen but serves as a template in the manufacture of donor proteins within the recipient, which are antigenic.

By injecting purified RNA from the skin, spleen or liver of one animal, researchers can cause an antigen-antibody reaction in the recipient. This is apparently due to the recipient's reaction to foreign proteins manufactured by the injected RNA.

Furthermore they found that increased amounts of injected donor RNA resulted in an overwhelming of the antibody-producing mechanism (immune paralysis) so that it stops producing antibodies against the donor proteins.

Thus these grafts may be accepted. Injection of increased amounts of purified RNA from tissues of a strain of black rats into a strain of white rats resulted in 40% successful takes in skin grafts (black on white). Less than 10% of grafts are accepted in untreated animals.

Does this mean that injection of purified RNA from tissues of a potential donor into a patient will cause the patient to permanently accept a skin graft or transplanted kidney from the donor? No, at least not in the immediate future.

This finding, however, may be a step in this direction, the investigators say. But much work needs to be done before the findings can be successfully translated into practical, clinical results.

Collaborating in these studies were Dr. N. R. Dutt, Eugene Garcia and Robert Sloan.

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TECHNOLOGY

MHD Generator Uses Fuel—Runs for Four Minutes

THE FIRST sizable model of a fuel-burning magnetohydrodynamic (MHD) electricity generator has run continuously for four minutes and produced two and one-half kilowatts of power.

The new MHD generator produces electric power by passing a super-hot (about 4,600 degrees Fahrenheit), electrically conducting gas, called a plasma, between the poles of a powerful magnet.

This ionized-potassium gas, which substitutes for the copper wires in the rotating coils of a standard electric generator, then passes down a ceramic-lined tube at 1,800 miles an hour, cuts across the magnetic field and gives an electric voltage and current.

This particular model heats the plasma by burning a mixture of three pounds of furnace oil to eight pounds of oxygen. Previous MHD generators produced the necessary heat with an electric arc, thus simply changing one form of electrical energy into another. Older models could operate no longer than five seconds.

Accomplishment of the four-minute run, plus using fuel as an original source of energy, are considered major breakthroughs in the development of MHD generators, which may some day power space ships.

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TIRE TANKS—These Rolli-Tankers will haul liquid over any terrain. They measure 64 by 42 inches, carry 500 gallons of liquid each and can be towed by any vehicle. The U. S. Army Transportation Material Command has purchased 166 units from Goodyear.

SCIENTIA INTERNATIONAL

NOVAS DEL MENSE IN INTERLINGUA

Technologia Maritime.—Naves pumpero, usate in combatter incendios in altere naves e in installationes de porto, es normalmente multo impedito in lor effortios de assistentia per le facto que le columnas de aqua que illos ejice genera un effecto de reaction con le resultado que lor movimientos deveni quasi ingovernabile. In Swansea, Grande Britannia, on ha nunc ponite in servicio un nove nave pumpero que ha motores permittente a illo movimientos intentional in omne directiones. Isto significa que on ha nunc un typo de nave pumpero que pote neutralisar omne impulso motori que es producte como reaction al ejection de columnas de aqua in le effortio de extinguir un incendio.

Agricultura.—In le lucta contra nocive insectos on investiga de plus in plus intensamente methodos que pote esser designate como biologic per contrasto con le methodos chimico-toxic le quales non pare meritar le confidentia ponite in illos in le passato. Le statounitense Departamento de Agricultura conduce currentemente experimentos comparative in duo micre insulas del Pacifico. In un caso grande numeros de insectos mascule de un certe specie de peste de fructo es capturate e sterilisate ante lor re-liberation, con le sperate effecto que le ovos de correspondentemente grande numeros de femininas remane infertile. In le altere insula on usa le methodo de attraher e occider masculos ante que illos attinge le stato de maturitate sexual.

Recercas de Cancere.—Le detection de cancere del bucca es possibile super le base de frottis ab persistente lesiones buccal e non require le obtention de specimens biopici. Le technica de iste simplicite methodo diagnostic multo apte al uso in le sala de consulta del dentista de practica private—eseva disveloppate per specialistas al Hospital Brooklyn del statounitense Administration de Veteranos.

Archeologia.—Le etate de objectos facite de obsidiana pote esser determinate per mesurar le spissitate del strato superficial in que aqua ha penetrare. Obsidiana es un specie de vitro vulcanic que es naturalmente disproviste de omne contento de aqua. Un objecto sculpturate ex illo es ergo libere de aqua al momento de su completion, sed illo comencia immediate a formar un progressivamente plus spisse strato exterior de hydration.—Variationes del humiditate atmospheric in le curso del seculos reduce le exactitude del methodo que require ancora multe recercas ante que illo pote esser applicate in le practica archeologic.

Astronautica.—Secundo Dr. J. A. Van Allen, le cintura de radiation que circumjace le terra e que porta le nomine de ille scientistas del Universitate Estatal de Iowa va disturbar le functionamento de batterias solar in satellites artificial equipate con illos. Le radiation va alterar le structura vital del semiconductores que es un constituyente essential de tal batterias. Illo va etiam nigrar le fenestras de quartz que admitte le lumine solar al interior del batterias.

Physica Atomic.—In le vicinitate de Vienna in Austria, le Agencia International de Energia Atomic construe un laboratorio pro le analyse de specimens de aere, aqua, solo, alimentos, etc. pro lor contento de radioactivitate. Omne isto es parte de un programma de regulaciones de securitate in le utilisation pacibile del energia atomic.

Gynecologia.—Dr. H. A. Schwartz de Chattanooga, Tennessee, reporta que le melior "porcos de India" pro tests de pregnantia post non-occurentia del fluxu mensual es le patientes

mesme. In le passato tal tests esseva conductite in conilos, ranas, e altere animales, sed Dr. Schwartz ha discoperite un plus simple methodo que non require ulle animal laboratorial del toto. Il pare que feminas pregnante e feminas non-pregnante reage multo differentemente a doses experimental del hormon feminin progesterona. In feminas non-pregnante le hormon reactiva le fluxu mensual. In feminas pregnante iste effecto remane absente. Le methodo es absolutamente innocente proque le sol effecto possibile de progesterona in feminas pregnante es que illo promove un plus firme implantation del ovo fertilisate.

Inventiones.—He essite patentate un bicycletta in que le rota anterior pote esser activate per "pumpar" le manicas. Le rota posterior es activate conventionalmente. Iste invention esseva inspirate per le desiro de meliorar le valor gymnastic del bicycletismo: Il nunc es possibile bicyclettar pro exercer le musculos del bracios e non solamente illos del gambas.

Computadores Electronic.—Nota Dr. S. N. Alexander del statounitense Bureau de Standards a Washington (1) que le russos possede nulle computadores electronic de efficacia comparabile a illos fabricate in le Statos Unite e (2) que le russos produce excellent resultados con lor non-excellent machinas. Conclude Dr. Alexander que le russos labora in iste campo con homines melio preparate e plus experite.

Theoria de Evolution.—Le idea del neobiogenese repetitive e continue—generalmente considerate como morte de post un seculo o plus—ha essite reformulate per Dr. J. Keosian del Universitate Rutgers in New Jersey. Dr. Keosian argue que certe algas e bacterios e super toto le varie typos de virus es difficile a placiare in le catena del evolution si on suppose que omne formas de vita terrestre ha descendite ab un sol "generation spontanee." Secundo Dr. Keosian, le hodie existente algas, bacterios, e virus non pote haber supervivite de post le tempore del prime biogenese terrestre, proque in tanto que le prime primitive formas de vita non ha avantiate verso un organisation plus complexe, illos debe haber perite in le lucta del existentia que demanda progresso per demandar un continue adaptation a nove conditiones. Post iste reflexiones il pare plausibile a Dr. Keosian supponer que nostre hodie algas e bacterios e certo nostre multiple formas de virus es de origine recente e possibilemente contemporanee.

Astronautica.—Le polonese servicio de prensa PAP reporta que Professor Jan Gadomski de Varsovia crede haber informationes indicante que le russos plana lanciar un projectil al planeta Marte in le curso del veniente septimanas. Lanceate le 16 de april, le projectil attingerea Marte le 30 de decembre.

Instrumentos.—Un recentemente patentate instrumento mesura le pression de un gas al interior de un receptaculo sin entrar in illo e sin que illo debe esser aperite. Le receptaculo debe esser transparente. Le instrumento functiona super le base del principio que fascas de lumine es difrangite per moleculas de gas. Per mesurar le quantitate de lumine afficte per le diffraction, le instrumento permette le calculation del pression del gas a transverso le qual le lumine ha passate.

Geophysica.—Datos ex observationes del orbita de satellites american ha ducite le mathematico sud-african D. G. Parkyn al conclusion que a un altitude de circa 300 km le densitate del atmosphera supra le polos es solamente circa 65% de illo supra le equator.

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GENERAL SCIENCE

Reading Interlingua

YOU CAN READ Interlingua if you had no more than one semester of high school French or Spanish or Latin and flunked it. You can read and understand a great deal of it even if you never had contact with any foreign language.

Send this page to an acquaintance abroad and tell him that he can get additional information about Interlingua from Alexander Gode, SCIENCE SERVICE's Interlingua Division, 80 E. 11th St., New York 3, N. Y.

Financial contributions to the Interlingua program are needed.

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BIOCHEMISTRY

Probe "Time Clocks" of Cells

A HUGE "atomic spotlight" is being used by scientists at Argonne National Laboratory, Lemont, Ill., to study the physiological "time clocks" that exist in all body cells.

The spotlight is actually a biological spectrophotograph, the world's largest of its type, and can aid in determining the reactions of living organisms to different wavelengths (colors) of light. It was built by Dr. Charles F. Ehret of Argonne's staff.

Recent evidence points to the presence of chemical compounds within cells that somehow regulate physical needs such as the desire for sleep. Every complex living organism has a natural timetable that is apparently regulated by these mechanisms, Dr. Ehret said.

For example, a person who travels by plane to a distant part of the world would be required to alter his eating and sleeping habits to conform to the different day-night schedule, and would feel uncomfortable until his "time clock" adjusted to the new environment.

In order to learn more about the nature of this "time clock" mechanism, Argonne scientists are exposing one-celled animals called paramecia to different wavelengths of light at various times. They have found that the "clocks" can easily be reset by exposing the animals to ultraviolet light.

Two of the typical effects, Dr. Ehret said, are alteration of mating response and

alteration of the basic chemical activities of the cells. This, in turn, can be reversed by exposing the paramecia to longer wavelengths, such as blue violet in the visible spectrum.

The wavelengths that have been most effectively absorbed by the complex pigments of paramecia somehow trigger a biochemical reaction that regulates many of the animal's life processes.

"These pigments have not yet been isolated for study," Dr. Ehret said, "but we know they exist because they leave 'fingerprints' by their action following the absorption of certain wavelengths of light. Once we understand the chemistry of nature's time clocks, we will have a way to probe the mechanism that controls wakefulness and sleepiness in humans."

Dr. Ehret said it may eventually be possible to eliminate the feeling of sleepiness by controlling these chemical "time clocks."

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PUBLIC HEALTH

Tumor-Causing Phenols In Cigarette Smoke

COMPOUNDS known to be capable of promoting the growth of tumors have been isolated from cigarette smoke by two researchers.

The compounds isolated belong to the

phenol family. Their presence in cigarettes is reported in *Nature*, 185:764, 1960, by W. Carruthers and R. A. W. Johnstone of the Washington Singer Laboratories, University of Exeter.

The two researchers isolated phenol compounds from British cigarettes. Some of the phenols have recently been identified in Japanese cigarettes while still others have been found in Argentinian cigarettes, they point out.

The researchers suggest that a portion of the phenols found in the smoke resulted from the burning of the tobacco.

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PALEONTOLOGY

2,600-Year-Old Seals Found in Antarctic Ice

THE U.S. COAST GUARD icebreaker East Wind is on its way back to the United States from Antarctica with the perfectly preserved carcasses of two 2,600-year-old seals in its refrigerated chamber.

The seals will be delivered to the Lubbock technical museum in Texas for study and research. They were among a group of 90 dead seals which an aerial survey photograph had shown entombed in the ice of Taylor Ravine in the Antarctic, Capt. Richard D. Schmidtman, East Wind skipper, said.

Special scientific processes have shown the seals to be about 2,600 years old. Capt. Schmidtman said scientists had concluded that the seals had either wandered into the ravine or had been chased there by some unknown animal. The ravine was miles from their natural food and they had starved to death before they could get out.

East Wind left Boston on Dec. 1 and became the first ship to land a party on Scott Island since its discovery in 1902.

The island is difficult to find because it is always covered with ice and could easily be mistaken for an iceberg.

The ship's landing party took the first mineral and geological samples ever collected from the island, as well as gravity readings.

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ASTRONOMY

Crab Nebula Is Seen First Time With 120-Inch

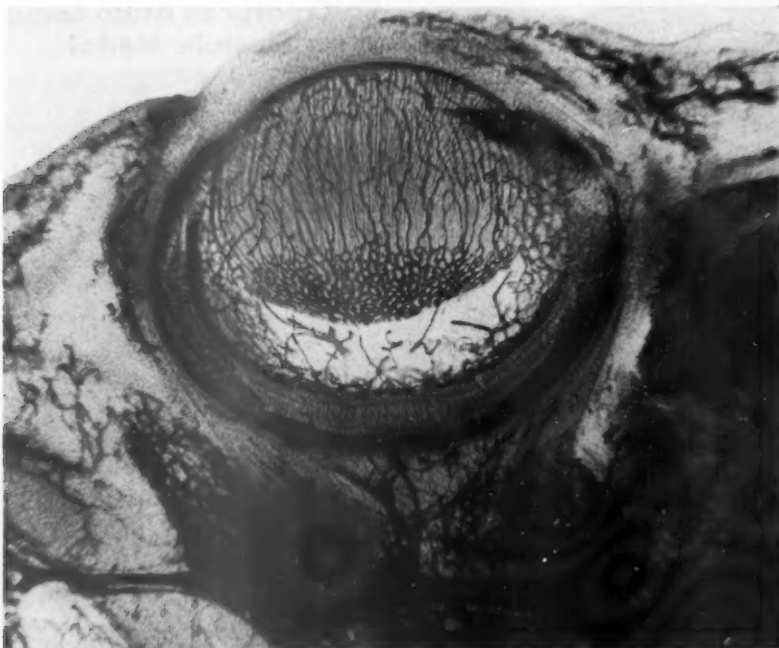
See Front Cover

Among the first pictures just taken with the newly completed 120-inch telescope at Lick Observatory of the University of California, is the one of the Crab Nebula seen on the cover of this week's *SCIENCE NEWS LETTER*.

This nebula, located in the constellation Taurus, was photographed in 30 minutes in red light. About 5,000 light years away, it is the gaseous mass thrown off by the supernova observed by the Chinese in 1054 A.D. This stellar explosion was so brilliant it could be seen in daylight for several days.

In recent years the Nebula has been found to be one of the strongest sources of heavenly radio waves.

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BLOOD VESSELS IN THE EYE—The retina and lens of this rabbit embryo, injected with India ink, reveal minute blood vessels. Changes in the pattern of the veins indicate the growth of the embryo. Dr. Leon H. Strong of Chicago Medical School will study such growth with the aid of a grant from the U. S. Public Health Service.

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AGRICULTURE

Uniform Cattle Eartags Eliminate Confusion

CATTLEMEN IN ALL 50 states have
now adopted a uniform system that will
identify 8,000,000,000 cattle by individual
numbers stamped on metal eartags per-
manently inserted in the animal's right ear.
First proposed by the U. S. Department of
Agriculture in 1955, the uniform eartag
number plan eliminates confusion caused
by different marking systems. Owners and
Government workers will use the number-
ing system in conjunction with individual
records showing health status, inoculation
dates, etc., production and breeding
activity of each animal.

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NUTRITION

Electronic Ovens Found Second Best

NOTE TO HUSBANDS whose wives are
pestering them for a new, electronic stove:
It came in second best in cooking contests
with conventional ovens.

Studies by Miss Nancy Marshall at the
Ohio Agricultural Experiment Station,
Wooster, Ohio, show that electronically
roasted beef is lower in appearance, tender-
ness, juiciness and flavor than comparable
cuts cooked in conventional ovens.

Roasts cooked electronically looked dry
and were full of holes. Portions of the
roasts became so hard they were unpalat-
able. Only 40% of the original weight was
"acceptable meat" after electronic cooking.
By comparison, standard ovens turned out
65% acceptable meat.

However, electronic ovens won in speed.
They cooked four times faster, averaging
10.7 minutes per pound of meat, while the
older method took 45.4 minutes.

Miss Marshall, reporting in the Journal
of Home Economics, 52:31, 1960, says that
weight loss, dryness and toughness could
be cut down by covering the roast with fat.
Using aluminum foil as a wrapper in elec-
tronic ovens was not advisable because it
allowed electric arcing, causing sparks in
the oven, she said.

Science News Letter, March 26, 1960

AGRICULTURE

Test for Antibiotics In Milk Developed

A TEST FOR antibiotics in milk that
could be conducted on the farm is now in
the experimental stage.

F. V. Kosikowski of Cornell University,
Ithaca, N. Y., told a University of Wis-
consin Farm and Home Week dairy indus-
try session at Madison that the test would
enable dairy fieldmen to test farm milk
at regular intervals, without the neces-
sity of bringing samples to the dairy plant.
He said present research was aimed at pro-
ducing a kit fieldmen could use.

In the test, tiny, blotterlike disks are
used to soak up small samples of milk.
These are then placed on a plate where
bacteria organisms are growing in a favor-
able substance. If, after an incubation

period, there is no bacteria growth in a
halo-like area around the disks, it is as-
sumed that an antibiotic or cleaning com-
pound is present in the milk.

Mr. Kasikowski said a disk containing
penicillin is also used in the plate to show
whether its "area of inhibition" is similar to
the milk.

Residues of penicillin and other drugs in
milk can cause difficulty in cheese making,
killing favorable bacteria while permitting
dangerous germs to grow.

Science News Letter, March 26, 1960

BOTANY

Direction of Rotation Affects Plant Growth

THE HEALTH of your potted plants may
depend on the direction in which you
rotate them.

A New Zealand researcher took several
types of plants under fixed conditions of
light, temperature and humidity and
turned them continuously about a vertical
axis at the rate of one revolution a day.

He found that the plants used—cyclamen
(a member of the primrose family), scarlet
runner beans, and oats—were sensitive to
the direction of rotation. Clockwise rota-
tion inhibited growth while counter-clock-
wise rotation stimulated it.

These findings are reported in Nature,
185:775, 1960, by Dr. R. L. Jones of the
department of scientific and industrial
research, Dominion Physical Laboratory,
Lower Hutt, New Zealand, in hopes that
they may be useful background to a study
of the twining of plants.

Science News Letter, March 26, 1960

GENERAL SCIENCE

Co-Creator of Atom Bomb Wins Einstein Medal

DR. LEO SZILARD, one of the co-
creators of America's first atomic bomb,
has won the Albert Einstein gold medal
and \$5,000 award for 1960. Born in Hun-
gary, Dr. Szilard was chief physicist at
the metallurgical laboratory of the Uni-
versity of Chicago which during World
War II worked on the atomic weapon
project. He is one of several outstanding
scientist-refugees to the U.S. whose work
contributed effectively to the defense of the
free world, and is still on the faculty of the
University of Chicago. The award was
made by the trustees of the Lewis and
Rosa Strauss Memorial Fund.

Science News Letter, March 26, 1960

ROCKETS AND MISSILES

Pioneer V Sets Radio Mark in Outer Space

PIONEER V radioed with a strong "voice"
back to earth on March 18 from 1,000,090
miles in space to listening scientists, ap-
proximately 162 hours after its launch from
Cape Canaveral on March 11. The solar
satellite continues in its orbit between the
earth and Venus.

Scientists and engineers, elated by the
satellite's success, hope to be receiving clear
signals when the satellite is 50,000,000 miles
away five months from now.

Science News Letter, March 26, 1960

AERONAUTICS

Altimeter Misreads on Ice

IN THE BLINDING whiteout that occurs in arctic blizzards, a pilot was seeking to land his plane in Greenland. His radio altimeter registered 2,000 feet. Suddenly there was a bump and the plane seemed to skid and careen. Through the swirling snow the pilot saw a figure straight ahead waving his arms. It was a ground-man signaling the pilot to cut off his engine.

This story, written into the history of the U.S. Army's Camp Century in Greenland, had a happy ending. But others like it ended in tragedy. Through such experiences Army engineers learned that radio altimeters may be used to measure the thickness of glacial ice. An altimeter may be able to do the job instantly and may replace the laborious and time-consuming process now used in the setting off of explosives and measuring seismic shocks.

Dr. Paul Siple, scientific adviser to the U.S. Army's research office, reported that several airplane crashes at the Army's arctic research outpost, Camp Century, are believed to have been caused by similar altimeter readings.

The radio wave sent out by the altimeter is supposed to be reflected from the ground to the plane. The elapsed time for this to happen is converted into feet of altitude for the pilot.

But when the plane flies over glacial ice, the altitude-measuring pulse appears to penetrate the glacier rather than be reflected from it. The wave appears to plunge

through the entire glacier and bounce off solid ground beneath.

If the plane is actually only ten feet over a glacier, the altimeter may read about 2,010 feet due to the fact that solid earth lies 2,000 feet beneath the glacial ice.

Army scientists now are checking the feasibility of using radio altimeters as a fast, accurate way to measure the thickness of glaciers.

Science News Letter, March 26, 1960

MEDICINE

History of Heart Disease Includes Three Factors

THREE FACTORS appear to influence the answer to the often-asked question: "What kind of people are likely to get heart disease?"

In a research program known as the Los Angeles Heart Study, now in its tenth year, the three factors are:

1. An elevation in blood pressure
2. A family history of heart disease
3. Elevated blood cholesterol

The study has been carried out under the direction of Dr. John M. Chapman of the School of Public Health, at the University of California, Los Angeles, together with Drs. L. S. Goerke and Leo G. Reeder, assisted by Mrs. Anne Coulson and others.

It is a cooperative one with the National Heart Institute of the U.S. Public Health

Service, the California Health Department, and other local agencies.

The project consists of a study of 1,859 men now or previously employed by the City of Los Angeles. These men, ages 20 to 70 at the initiation of the study, were in all types of jobs ranging from heavy manual labor to desk jobs.

They received detailed examinations between 1950 and 1954 and since that time have been contacted annually to determine whether or not heart disease has been diagnosed by their personal physicians.

During the decade 135 have died from various causes, including 59 from coronary heart disease. A total of more than 100 cases of this disease has occurred, including the fatal cases. The incidence is highest among the men who had high blood pressure, a family history of heart disease, or elevated blood cholesterol.

There did not appear to be any relationship between the type of work or socioeconomic status of the individual in the development of heart disease. The disease struck alike among those in executive positions and in unskilled labor, among those in sedentary jobs and those involving heavy exercise.

Science News Letter, March 26, 1960

ROCKETS AND MISSILES

USSR Mars Shot Expected Soon

A POLISH specialist in astronautics believes Soviet scientists may shoot a rocket to Mars within a few months. The Polish news agency PAP reports that Prof. Jan Gadomski said the USSR's rocket tests in the Pacific are a preparation for the Mars thrust. Prof. Gadomski pinpointed April 16 as the best time for the shot. The rocket would then reach Mars on Dec. 30 when the planet is closest to the earth. The PAP report was included in a group of items dealing with the Soviet Bloc International Geophysical Cooperation for 1960 in a document prepared by the U.S. Department of Commerce.

Science News Letter, March 26, 1960

ASTRONOMY

Nova Shines in the Eagle For the Early Bird

A NEW NOVA that can be seen as a faint object with the naked eye or binoculars was discovered March 7.

A nova is a star that suddenly increases its light and becomes prominent in the sky for a time but later diminishes its light and becomes obscure.

The nova has a brightness of fifth magnitude. It can be seen from about 1 a.m. in the southeastern sky until morning when it will have moved up high in the southern sky. It is located in the Milky Way on the border between two constellations: Hercules, and Aquila, the eagle.

The find was reported by Miss J. M. Vinter-Hansen, Danish astronomer, to Harvard College Observatory, Cambridge, Mass., clearing house for astronomical information in the Western Hemisphere.

Science News Letter, March 26, 1960



RE-ENTRY VEHICLE—This experimental missile re-entry vehicle of the Air Force Research and Development Command's Cambridge Research Center contains instruments for measuring meteor sizes and electrical energy in space. Engineer Joseph Frissora of Geo-Sciences, Inc. is pointing to his self-designed meteor detector. The "ears" on each side of the vehicle measure ion densities and the electrical potential of the re-entering vehicle.

MEDICINE

Mental Depression Drug Helps Other Ailments

MANY DISORDERS closely identified with a patient's mental attitude appear to be helped by a drug originally aimed at the mentally depressed, it has been reported.

Angina, arthritis, asthmatic bronchitis and gastrointestinal distress were just a few of the diseases which Dr. Walter L. Evans of St. Clare's Hospital, New York, found responsive to doses of Nardil. His report appears in New York State Medical Journal, March 15.

Nardil, Dr. Evans reports, appears to enable the patient to channel usefully his capacity for positive aggressive action, diverting his energy outward rather than into psychosomatic channels. Certain people seem to have the capacity to channel conflict into some target area like the musculoskeletal system, with the result that the biochemical processes producing arthritis are thrown into gear.

Another individual, facing a similar situation, might develop a severe depression, while still another could develop asthmatic bronchitis or angina pectoris, he explains.

The drug also proved effective in treating cases of bursitis, neuritis, herniated spinal disk, relapsing pancreatitis, high blood pressure and fibrositis, or muscular rheumatism. Dr. Evans reports that after treatment, he rated 16 as excellent, six as good, while four showed only slight or no change. Nardil is a product of Warner-Chilcott Laboratories of Morris Plains, N.J.

Science News Letter, March 26, 1960

GEOLOGY

Hidden Water Traced By Bomb Fallout in Rain

RADIOACTIVE fallout from atom bomb tests can be used to seek out and "expose" new sources of drinking water that lie hidden deep in the earth.

This prospect was suggested by a special report prepared by the Atomic Energy Commission and the U.S. Geological Survey for the Senate Select Committee on National Water Resources, Sen. Robert S. Kerr (D-Okla.), chairman.

The report said research projects for developing such techniques are now under way in New Jersey, Wisconsin and New Mexico.

Raindrops have an affinity for absorbing minute particles of tritium from the fallout left in the atmosphere after nuclear bomb tests. Scientists seek ways to use these particles as "atomic dog tags" to identify underground water and find out how it percolates into the earth, where it goes and how fast it travels. This, they believe, may be done by taking samples from test wells at different places and depths from which water "tagged" with tritium can be identified with delicate instruments to learn its origin as rain or snow.

Then, by using harmless quantities of tritium to "tag" water entering the ground at later dates, they hope to be able to

measure how fast the water tables are replenished and determine the extent to which they can be dependably put to use.

Much still remains to be learned about the precise location and extent of underground water resources, how they are formed and recharged, their travels, and what can be done to replenish them as they are diminished by use or natural causes.

Sen. Kerr pointed out that more ground water sources will be needed for national growth in many areas, in addition to full conservation of stream flows.

Science News Letter, March 26, 1960

TECHNOLOGY

Multifuel Diesel Engine Passes Army Tests

AN ENGINE designed to burn several different kinds of fuels has turned in a better performance at burning gasoline than a standard Army engine designed specifically to burn only gasoline.

In tests by the U. S. Army Transportation Corps, the multifuel diesel engine at its worst got five miles to the gallon when burning Army gasoline. The standard gasoline-burning engine in the Army's M-48 two-and-a-half-ton tractor got only 3.2 miles to the gallon.

Developed by Dr. J. S. Maurer of the Mann Company, Augsburg-Nuremberg, Germany, the multifuel diesel also performed economically on JP-4 fuel, kerosene, standard diesel and marine diesel fuels. Performance figures for these fuels, respectively, were 5.7, 5.5, 6.1 and 5.4 miles per gallon.

This means that an M-48 tractor equipped with the multifuel diesel engine could travel almost twice as far on a given amount of fuel as one powered by the regular gasoline engine. Furthermore, the tractor could be fueled with any of the five fuels that happened to be on hand.

Details of the study are carried in a report on the "Multifuel-Diesel-Engine Truck" by J. T. Gurganious and R. L. Berriker of the U. S. Army's Transportation Corps. The report was published by the Office of Technical Services, U. S. Department of Commerce, Washington, D. C.

Science News Letter, March 26, 1960

AERONAUTICS

Modified Truck Tests Tomorrow's Rotorcraft

A SPECIAL tractor truck for safe "flight" tests of rotorcraft and ducted fan aircraft has been developed for the army, the Cornell Aeronautical Laboratory in Buffalo, N.Y., has announced.

The aircraft, sometimes called tomorrow's jeeps, are placed on a tower on the truck. Then the truck is driven along at speeds up to 60 miles per hour.

Instruments measure the effect of the passing air. The laboratory developed the tractor truck because wind tunnels for full scale rotorcraft tests have not been readily available.

Science News Letter, March 26, 1960

IN SCIENCE

CIVIL ENGINEERING

Strong Epoxy Plastics Repair Concrete Roads

REPAIRS in concrete California highways are being made with plastics so strong they hold even when the concrete itself breaks.

Bailey Tremper, supervising materials and research engineer for the California Division of Highways, told the American Concrete Institute's meeting in New York that epoxy resins form "strong, chemically resistant structures having remarkable adhesive properties." A recent product of chemistry, the resins have long, crosslinked molecules that provide great strength.

Mr. Tremper said his division, as far as is known, first discovered "that epoxy adhesives will form a strong, durable bond between fresh plastic concrete and old, hardened concrete."

In one application, holes are coated with resins and fresh concrete poured in. The repair thus made is strong and more economical than the resins used for the whole filling job.

California installations have proved the durability of the resins in areas of mild weather. Only recently have they been tried in locations where winter temperatures fall below zero. Mr. Tremper said he is "not prepared to state at this time that the typical formulation yields adequate flexibility for exposure to cold weather."

Science News Letter, March 26, 1960

MINING

Radiation May Be Used To Make "Better" Coal

THE POSSIBILITY that atomic radiation could be used to make better bituminous coal for some purposes has been raised by the Bureau of Mines.

Research conducted by the Bureau showed that irradiation (by neutron and gamma-ray bombardment) makes some bituminous coal harder. This might ultimately make possible production of stronger coke.

It is believed that radiation also disturbs the delicate electrical balance of certain bituminous coal molecules, predisposing the coal to react more readily with other materials.

If true, this could lead to improvements in processes for changing coal to liquid fuels and chemicals. But "considerable research will be required to confirm this possibility," the Bureau said.

The research, carried out at Government-owned atomic installations, showed that radiation left most varieties of coal "substantially unchanged." Analyses were made on irradiated samples representing all ranks of bituminous coal, including lignite.

Science News Letter, March 26, 1960

CE FIELDS

NUTRITION

Milk Tastes Better With Added Non-Fat Solids

MILK WILL TASTE better as the result of the addition of "solids not fat" (SNF). A test for such solids could become a basis for milk buying, replacing the traditional butterfat test.

Taste tests conducted at the University of Arizona and supported by the American Dairy Association are reported by D. H. Jacobsen, research director for the dairy association.

In milk with a 3.5% butterfat content, milk containing 9.5% SNF was preferred by 60% of those making the test, compared with 40% who preferred milk with 8.5% SNF, the amount found in "regular" milk.

In another test, 3.5% milk containing 8.5% SNF was preferred by 47%, while milk with only two percent butterfat but containing ten percent SNF was preferred by 53% of the persons trying it. The total solids were 12% in both cases, and therefore preference for high solids content does not necessarily mean fat content.

Work is still being done on perfecting a satisfactory test for SNF. One such test involves the use of plastic beads of different density, dropped in a milk sample. The richer the milk in solids, the fewer beads drop to the bottom.

Science News Letter, March 26, 1960

ZOOLOGY

Sex? Male-Female Relationship Chemical

WHY ARE FEMALE sex cells inclined to get together with only male sex cells of the same species?

Dr. John R. Shaver believes the relationship between male and female cells is chemical. A similar relationship, he thinks, may be the reason why other cells join together to form tissue.

The Michigan State University zoology professor and a graduate assistant, Charles A. Shivers, reported findings supporting this concept to the Midwestern Conference on Developmental Biology at Kenyon College, Gambier, Ohio.

Frog eggs of different species, they said, appear to vary in the chemical make-up of the jelly-like coating that surrounds each one.

This difference, they noted, may be the reason why only a sperm (male sex cell) of the same species clings to the coating and then works its way through the jelly-like substance until it reaches the egg proper. Sperm of a different species is rejected.

The coatings of different species of frog eggs appear to be formed of the same basic substances, polysaccharides and amino acids.

However, serological experiments indicate there is a difference. In these experiments, the scientists produced an antiserum to coatings from one species by injecting particles of them into rabbits.

They then treated frog eggs with this antiserum and found they became much less fertile than they were before.

Whatever it is in the coating that attracts sperm appears to react with antibodies to it and is used up. Therefore the attraction for the sperm no longer exists, reducing the possibility that a sperm will penetrate the coating.

Science News Letter, March 26, 1960

VETERINARY MEDICINE

Hog Cholera Virus Grown in Tissue Culture

HOG CHOLERA virus has been grown and maintained successfully for 16 months on cultures of swine cells.

After 13 transfers the virus is still strong enough that very small injections will produce the disease. This is the first step toward finding a simple laboratory method to detect and diagnose cases in live pigs.

Hog cholera costs United States owners \$50,000,000 every year. Clinical diagnosis is difficult. Symptoms vary and are often similar to those for other swine diseases.

At present the only way to detect hog cholera is to inject a healthy pig with fluid from a diseased one, a time-consuming and expensive process.

Dr. D. P. Gustafson and the team of Purdue University veterinary scientists who developed the cultures believe that with more experience they will be able to diagnose the disease by a faster and cheaper method. Samples from diseased pigs will be grown on cultures of swine embryo lymph node cells or buffy coat (white blood) cells. If hog cholera virus is present, it will cause certain changes in the appearance of the culture cells.

The scientists also are trying to develop an immunization method and to find out how the disease is passed from one animal to another. They have discovered that the bacterium *Salmonella choleraesuis* makes it easier for hog cholera virus to penetrate the skin and pass through the intestine.

Science News Letter, March 26, 1960

PSYCHOLOGY

Blame Personality Traits For Many Auto Accidents

WHEN A DRIVER has an automobile accident, his personality characteristics are more likely to be responsible than inefficiency at the wheel. Dr. J. J. Conger, head of the division of clinical psychiatry at the University of Colorado Medical Center, Denver, Colo., found that the "average driver" is more accident prone when he is worried, angry, tense or even unusually elated. The old yardsticks, such as reaction time, depth perception, coordination and general intelligence, have little value in differentiating the safe from the unsafe driver, Dr. Conger said.

Science News Letter, March 26, 1960

ASTRONOMY

60-Inch Eye to Show Sun 34 Inches in Diameter

THE WORLD'S largest solar telescope will be located at Kitt Peak Observatory which was dedicated at Tucson, Ariz., March 15.

The solar telescope will have a 60-inch mirror with a focal length of 300 feet. The sun will be shown as an object 34 inches across. This image will be more than twice as large as that of any other existing solar telescope.

The observatory also plans to launch a 50-inch satellite telescope to orbit the earth at heights of 22,400 miles. This instrument will make observations on remote-control command from the earth and relay them back to earth.

The satellite telescope is a long-range project on which National Aeronautics and Space Administration scientists are co-operating in the planning and design with the observatory and the National Science Foundation that supports it.

At the dedication of the observatory a 36-inch reflecting telescope of advanced design saw its first use. This instrument will be used primarily as a photo-electric telescope. Its ratio spectrometer will measure star brightness both in the long and short ranges of the spectrum and compare the two findings. This cancels out star twinkling and gives a more accurate picture of star brightness. The focal length of the instrument is 40.5 feet with a Cassegrain focus of f13.5.

An 84-inch reflector is to be installed in 1961 or 1962. The observatory will be open to all qualified U.S. astronomers.

Science News Letter, March 26, 1960

TECHNOLOGY

Making Cars May Be Sticky Business

TOMORROW'S automobile will probably be glued together.

Two adhesives experts told this to the Society of Automotive Engineers in Detroit. A. Farley Thomson and Albert F. Martin of the coatings and sealers division of Minnesota Mining & Manufacturing Company reported that structural adhesives can compete with welding and riveting for fastening light metals such as aluminum.

"The fact that joining with adhesives forms a seal as well as a bond should not be overlooked," Thomson and Martin's research paper said. "Think of the headaches which will be eliminated when it is no longer necessary to gunk up the drip rail and the trunk gutter with sealer. This can be extended to the cowl and floor seams."

Tests reported by the researchers showed adhesives outperformed spot welds and rivets in some situations. A major drawback of adhesives, however, is the extra time and new techniques required for their use, Mr. Thomson and Mr. Martin said.

But as lighter metals such as aluminum are used more and more, the researchers said, adhesives will grow in use.

Science News Letter, March 26, 1960

ASTRONOMY

Lion in Southern Evening Sky

The constellation Leo was observed by ancient peoples. Greek-Roman mythology teaches that Hercules killed the lion, and Jupiter placed it in the sky.

By JAMES STOKLEY

THE CONSTELLATION known as Leo, the lion, will be visible high in the southern evening sky during April. The accompanying maps show its position, along with the other constellations that you can see about 10:00 p.m., April 1, 9:00 p.m. on the 15th and 8:00 p.m. at the end of the month.

In the right-hand (western) part of Leo is the "sickle," a sub-group of six stars arranged in the form of this agricultural implement. The handle, marked by the first-magnitude star Regulus, is downwards, and the end of the blade points toward the western horizon.

Regulus is one of ten bright stars now visible, although some are so close to the horizon (at the times for which these maps are drawn) that earth's atmosphere absorbs their light, and makes them look considerably fainter than when they were higher in the sky.

To the left of Leo, and a little lower, you can see Virgo, the virgin, with the star Spica. Above the eastern end of Virgo is Bootes, the bear-driver, with Arcturus.

Over in the west some of the constellations that were brilliant in the winter sky are still visible. Some are shown on the southern sky map, others on the northern. Highest of these groups is Gemini, the twins, with Castor and Pollux (the latter of the first magnitude). A little lower and to the left is Canis Minor, the lesser dog, with Procyon. Below this, near the horizon, is the great dog, Canis Major, with brilliant Sirius. A little to the right you will see Orion, the warrior. Only part of this group is still visible: the three stars of his belt, and Betelgeuse, above. Farther to the right is part of Taurus, the bull, with Aldebaran near the horizon. And above this you will find Auriga, the charioteer, with brilliant Capella.

Northern Constellations

Now look toward the northern sky. High above stands Ursa Major, the great bear, of which the familiar big dipper is part. The dipper is upside down; its handle, extending toward the right, shows the direction of Arcturus. At the left are the pointers, in the dipper's bowl, which direct you downwards to Polaris, the pole star. This is at the end of the handle of the little dipper, which, in turn, is part of Ursa Minor, the lesser bear.

Along the northern horizon you will see Perseus, the champion (below Auriga); Cassiopeia, the princess; Cepheus, the king; and (close to the horizon in the northeast) Vega, in Lyra, the lyre. This star, among

those visible from most parts of the United States and from Canada, is second only to Sirius in brightness, but now it is so low that it seems much fainter. By early morning hours, or in the evening—later in the year—it shines overhead with full brilliance.

No planets shine these April evenings, but Jupiter, in Sagittarius, the archer, rises in the southeast about midnight. Saturn (considerably fainter, but still equal to a first-magnitude star) follows about an hour later, in the same constellation. Mars, still fainter, appears about two hours ahead of the sun, in Aquarius, the water-carrier, just before morning twilight begins. Venus comes up less than an hour before sunrise, and so does Mercury, around the seventh of April. Both of these planets, however, are now so low that they will be difficult to locate in the dawn's light.

It is hard for us today to visualize the imaginary figures which earlier men placed around the stars. Take Leo, for example. We can see the sickle, because these six stars do form the outline of that useful tool. But on the old star maps, which showed the figures drawn around the stars, the blade of the sickle formed the lion's head. Regulus was in his shoulder, and the faint star off to the right was one of his

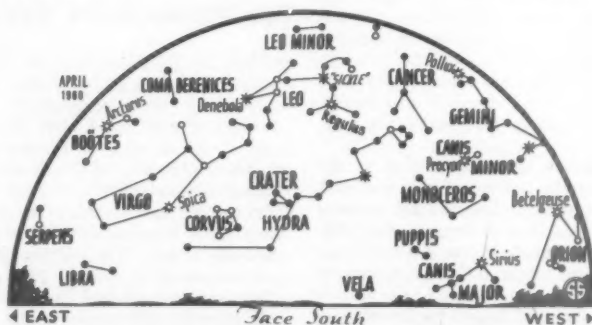
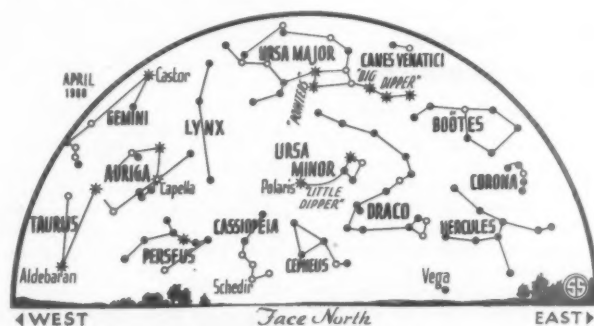
paws. The star Denebola, of the second magnitude, off to the left, was the end of his tail.

But this was not always the arrangement. Farther to the left, above Bootes, you can see a cluster of faint stars that now form the constellation of Coma Berenices—Berenice's hair. These, originally, formed the brush on the end of the lion's tail. Elijah Burritt, an astronomical writer of the nineteenth century, tells the story thus:

"Berenice was of royal descent, and a lady of great beauty, who married Ptolemy Soter or Euergetes, one of the kings of Egypt, her own brother. When he was going on a dangerous expedition against the Assyrians she vowed to dedicate her hair to the goddess of beauty, if he returned in safety. Some time after the victorious return of her husband the locks, which she had deposited in the temple of Venus, disappeared. The king expressed great regret at the loss, whereupon Conon, his astronomer, publicly reported that Jupiter had taken away the queen's locks from the temple and placed them among the stars in this figure."

So ever since, if this legend can be believed, Coma Berenices has been a separate constellation, and the lion's tail has been curled around in a smaller space!

Leo is probably the most famous of the 12 constellations that form the zodiac, which is the path through which the sun, moon and planets appear to move around the sky. The others that are shown in



* * * SYMBOLS FOR STARS IN ORDER OF BRIGHTNESS

April are Libra, Virgo, Cancer, Gemini and Taurus.

Every year, as the earth revolves around the sun, the sun itself stands against a changing background of stars. These, of course, are not visible because of the sun's glare. Now, at the beginning of summer, its background is the constellation of Gemini, which we now see in the west in the evening. But many thousands of years ago, as summer started in the Northern Hemisphere, the sun stood against the stars of Leo, and it rose higher in the sky than at any other time of year. As one early writer put it: "The sunne being in that signe is most raging and hot like a lion."

In Egypt, at that time of year, the lions of the desert sought to escape the heat by coming to the banks of the Nile, which attained its greatest height in early summer, and this has been suggested as the origin of the constellation.

According to the Greek-Roman mythology, this was the lion that infested the forest of Nemea. In the first of his famous labors Hercules killed it, and Jupiter placed it in the sky to commemorate that conflict.

The ancient Hebrews also regarded the figure as a lion—the one that symbolized the tribe of Judah. Several centuries ago some astronomers felt that Christians should not use the old pagan names of the constellations, and prepared new groupings. To them, this was one of Daniel's lions. Fortunately, however, such reforms failed and we still use the old and interesting names.

Celestial Time Table for April

April EST	
2 5:00 p.m.	Moon farthest from earth, distance 251,300 miles
4 2:05 a.m.	Moon at first quarter
7 8:00 a.m.	Mercury farthest west of sun
9 2:12 a.m.	Algol (variable star in Perseus) at minimum
11 3:28 p.m.	Full moon
11:01 p.m.	Algol at minimum
14 2:00 p.m.	Moon nearest, distance 227,100 miles
7:50 p.m.	Algol at minimum
16 2:00 p.m.	Jupiter passes south of moon
17 4:00 p.m.	Saturn passes south of moon
18 7:57 a.m.	Moon in last quarter
21 8:00 p.m.	Mars passes south of moon
25 4:45 p.m.	New moon
27 9:00 p.m.	Planet Uranus in opposite direction from sun and nearest earth—distance 2,724,000,000 miles
30 11:00 a.m.	Moon farthest, distance 251,800 miles

Subtract one hour for CST, two hours for MST, and three for PST.

Science News Letter, March 26, 1960

Do You Know

Of the 12,000,000 to 16,000,000 people in the world that have leprosy, Africa south of the Sahara accounts for some 2,300,000 cases.

The New York Coliseum in New York City is the nation's largest exhibition hall, with more than 300,000 square feet of exhibit space.

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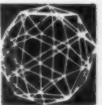
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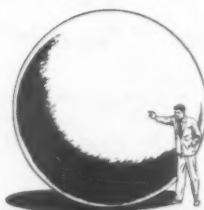
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Books of the Week

(Continued from page 204)

—Dover, 407 p., paper, \$2.25. Unabridged reprint, first published in 1926.

IONIZATION PHENOMENA IN GASES—Gordon Francis—Academic, 300 p., illus., \$10.50. For postgraduate students, treats those branches of the subject which are closely linked with other branches of physics, such as atmospheric phenomena, and high-current discharges.

LEONARDO DA VINCI: A Pictorial Biography—Richard Friedenthal—Viking, 144 p., illus., \$6.50. Concise account of Leonardo's creative achievements, including engineering drawings.

THE LEOPARD'S SPOTS: Scientific Attitudes toward Race in America, 1815-59—Wilbur Stanton—Univ. of Chicago Press, 245 p., \$4. Documented review of the school of early 19th century American physical anthropologists who thought the races of man were distinct species.

LEWIS HENRY MORGAN: American Scholar—Carl Resek—Univ. of Chicago Press, 184 p., illus., \$4.50. Account of life and unorthodox thinking of American scholar who was credited with creating the science of anthropology.

THE MARINE CORROSION HANDBOOK—T. Howard Rogers—McGraw, 297 p., illus., \$12.50. Practical guide for non-specialists on the prevention of corrosion in ocean-going ships, including machinery and equipment.

MEASURING HEALTH LEVELS IN THE UNITED STATES, 1900-1958—Odin W. Anderson and Montee Lerner—Health Information Foundation, 38 p., paper, single copies free upon request direct to publisher, 420 Lexington Ave., New York 17, N. Y. Shows changes in leading causes of death.

MICROWAVE TRANSMISSION—J. C. Slater—Dover, 309 p., paper, \$1.50. Reprint of 1942 edition.

NUCLEAR SCIENCE ABSTRACTS: 1959 Annual Index, Vol. 13. Part 1: Corporate Author, Personal Author and Report Number Index. Part 2: Subject Index—Paul E. Postell, Ed.—USAE (GPO), 781 p., and 764 p., paper, \$4.25 each. Supersedes all indexes issued prior to volume 13.

POWER AND ENERGY—Noemie Benzeczer-Koller and Earl Leonard Koller—Home Lib., 34 p., illus. by N. Kenyon and A. Edwards, 69¢; deluxe \$1.95. For boys and girls.

PROCEEDINGS OF THE AEC SYMPOSIUM FOR CHEMICAL PROCESSING OF IRRADIATED FUELS from Power, Test, and Research Reactors, Richmond, Wash., 1959—G. F. Quinn and others—AEC (OTS), 455 p., illus., paper, \$4.50. Separation processes for plutonium and uranium.

Science News Letter, March 26, 1960

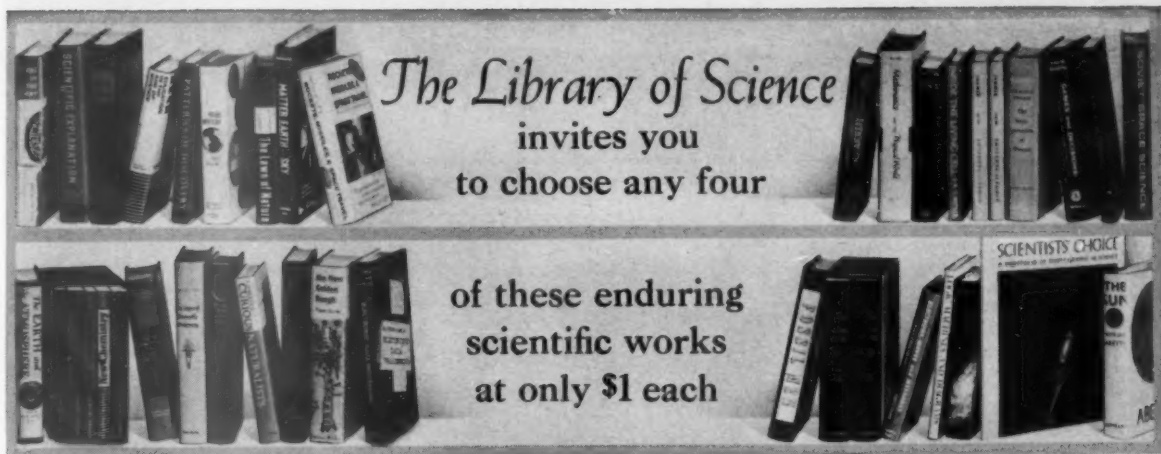
Questions

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CIVIL ENGINEERING—How are the epoxy resins used in repairing roads? p. 200.

ROCKETS AND MISSILES—The two TV cameras in Tiras I will take pictures of areas how wide? p. 195.

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FIRE STARTER helps start charcoal or wood fires. Squeezed from its tube, a golf-ball-sized lump of the non-explosive red jelly should burn about 10 minutes—long enough to get most fires under way. The chemical jelly is also useful as a safety flare in highway emergencies.

Science News Letter, March 26, 1960

MAGNETIC STIRRER mixes six beakers of materials at the same time. Six magnets within the machine turn small magnets placed in the beakers and give identical agitation needed for some laboratory experiments.

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DRIP-DRY LAUNDRY RACK, shown in the photograph, is a collapsible convenience for travelers. Expanded, the rack has five



plastic-coated rods and is mounted on the back of a chair or over a towel bar. It folds to 12-x-18-inch size for carrying in a suitcase.

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HOSE HIDER stores up to 150 feet of hose on a large reel in the basement but keeps it available for outdoor watering or indoor fire-fighting. A compartment, which may be locked, must be set into the wall of the house for outdoor access to the hose and faucet. A trap door installed in the floor above the hose reel keeps hose ready for use on fires inside.

Science News Letter, March 26, 1960



Nature Ramblings



THERE ARE MANY places on the earth where it would be difficult—if not impossible—to say this is land or this is water. These are the tidal marshes where water meets land.

Here mosquitoes and biting flies breed. Any person who ventures into the marsh finds his shoes and clothing covered with a sticky, smelly mud as he pushes his way through tall, tough grasses.

Here, also, you may find tin cans and other rubbish that turns the scene into an eyesore.

Increasingly in recent years the marshes are being turned into "useful" land. With the refuse leveled off and packed down, what was once a natural bit of "in-between" land becomes the site for a factory or a housing development.

You might say that this is good. Our growing population needs more room to live in and for industry to expand. Yet, we may be paying an exorbitant price for this room.

Filling in or polluting marshes starts a cycle of destruction. Hunters and trappers know these regions can provide sport,

Where Water Meets Land



food or a good financial yield.

Fishermen catch turtles, blue crabs, oysters, white perch and other fishes in the tidal streams that meander through the marshland.

Migrating ducks and other waterfowl use the marshes as resting places, for breeding or as "lunch counters." When the marshes disappear, the biology of the area changes and wildlife disappears.

In an attempt to learn more about the conflict in man's interests in marshes—to use it for factories and homes or for recreation and hunting—a study of one marsh

was made by the University of Delaware.

Now, reported Franklin C. Daiber, it is possible to describe the full circle of relationship in salt marshes. The phosphates and nitrates that come from decomposed material go into new plant tissue. These plants, while alive, provide food or shelter for animals and waterfowl; dead, they are food for crabs, snails, mussels and, indirectly, fishes.

Detritus, fine particles of mostly plant "stuff," is both a link in the cycle and a basic part of the marsh animals' nutrition. Detritus also seems to be related to vitamin B-12.

The amount of this important vitamin, which can be synthesized by certain bacteria, varies directly with the amount of detritus. Possibly, Mr. Daiber suggested, the bacteria are carried "piggy-back" on the detritus particles.

Considering the vitamins in the foods you eat or the pleasures of a "good bag" at the end of a hunting day, the marshland may be more important than 20 new houses.

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